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वस्त्रादि–विद्युतरोधी प्रयोजनों के लिए सूती किनारेदार फीता–विशिष्टि

(तीसरा पुनरीक्षण)

Indian Standard

TEXTILES—COTTON SELVEDGE TAPES FOR ELECTRICAL INSULATION PURPOSES—SPECIFICATION

(Third Revision)

ICS 29.080.01;59.080.99

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 2003 **Price Group 3**

Narrow Fabrics, Webbings and Braids Sectional Committee, TXD 12

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Narrow Fabrics, Webbings and Braids Sectional Committee had been approved by the Textiles Division Council.

This standard was first published in 1961 and later on revised in 1963 and 1973. The present revision has been taken up in the light of experience gained in implementation of the standard. In this revision the following changes have been effected:

a) Scope has been modified to include tapes manufactured on shuttleless looms,

b) Weave design of tape has also been specified,

c) Requirement for locking thread for tapes manufactured on shuttleless looms has been specified, and

d) Means of identification of tape when manufactured on shuttle/shuttleless looms have also been provided.

There is no international standard on the subject.

The composition of Committee responsible for preparation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

Indian Standard

TEXTILES—COTTON SELVEDGE TAPES FOR ELECTRICAL INSULATION PURPOSES — SPECIFICATION

(Third Revision)

1 SCOPE

This standard prescribes constructional particulars and other requirements of two types of unsized cotton selvedge tapes woven on conventional or shuttleless looms, used for electrical insulation purposes.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
1383 : 1977	Methods for determination of scouring loss in grey and finished cotton textile materials (*first revision*)
1390 : 1983	Methods for determination of *p*H value of aqueous extracts of textile materials (*first revision*)
1954 : 1990	Methods for determination of length and width of fabrics (*second revision*)
4202 : 1967	Methods for determination of chloride content of textile materials
4420 : 1967	Methods for determination of conductivity of acqueous and organic extracts of textile materials
5352 (Part 2) : 1999	Textiles — Glass and glass-polyester fibre woven tapes : Part 2 Methods of test (*third revision*)

3 CLASSIFICATION

The tapes are classified into following two types:

a) *Type* 1 — Tapes woven on shuttle looms.

b) *Type* 2 — Tapes woven on shuttleless looms.

4 MANUFACTURE

4.1 Yarn

The cotton yarn used both in warp and weft for the manufacture of tapes shall be reasonably free from neps, slubs, knots, kinks, etc. It shall be unsized.

4.2 Weave

The tapes shall be woven in Plain weave or Herring bone twill (W and V Twill) weave with uniform selvedges. The tapes of Plain weave shall be calendered and those of Twill weave shall not be calendered.

4.3 Locking Thread

For Type 2 tapes, the picks shall be interlocked at or near the selvedge opposite the one from which weft is inserted, thus preventing unravelling of the selvedges during use. The method of interlacing shall be such that the thread cannot be pulled out of the body of the tape.

4.4 Centre Marking

Centre line/marking of any colour may be provided by weaving a coloured warp thread into the centre of the tape, if specified by the buyer.

4.5 Identification of Types of Tapes

Tapes shall be identified according to type as follows:

a) *Type* 1 — A single coloured warp thread positioned in such a manner so as to indicate the centre line of the tape.

b) *Type* 2 — Two coloured warp threads close together and positioned in such a manner so as to indicate the centre line of the tape.

5 REQUIREMENTS

5.1 Thickness

The nominal thickness measured between the selvedges of the tape shall comply with the values given in Table 1. Thickness, when measured at the selvedges, shall not exceed the thickness between the selvedges by more than 0.03 mm. The thickness of tapes shall be determined by the method prescribed in IS 5352 (Part 2).

Table 1 Thickness and Tolerance

(*Clause* 5.1)

All dimensions in millimetres.

Type of Weave	Nominal Thickness	Minimum Thickness	Maximum Thickness
(1)	(2)	(3)	(4)
Plain weave			
	0.18	0.16	0.23
	0.20	0.18	0.25
	0.25	0.22	0.30
	0.30	0.25	0.35
Twill weave			
	0.25	0.23	0.30
	0.28	0.24	0.35
	0.40	0.38	0.45
	0.50	0.45	0.60

5.2 Width

The nominal width of the tape shall be 15, 20, 25, 30 and 35 mm.

The following tolerances shall be permitted on nominal width:

Nominal Width mm	*Tolerance* mm
Up to and including 25	± 1.0
Above 25	± 1.5

The width of tapes shall be determined in accordance with the method given in IS 5352 (Part 2).

5.3 Length

Unless otherwise specified, the tape shall be supplied on rolls in 50 m length. The number of joints per roll shall not exceed two and none of the tape piece in a roll shall be shorter than 10 m. The length of the tape in each roll shall be determined by the method prescribed in IS 1954.

5.3.1 In case of roll with joints, the tape pieces shall be butted and joined up by a strip of coloured gummed tape which shall show on the edge of roll to indicate the presence of joints. Pins or other metal fastners shall not be used for securing the ends of rolls or for joining the tapes.

5.3.2 In any consignment, the number of rolls having joints shall not exceed by more than 10 percent.

5.4 Other Requirements

The tapes shall also conform to the physical and chemical requirements as given in Table 2 and Table 3.

6 PACKING

6.1 Winding

This shall be as agreed to between the manufacturer and the buyer. However the recommended method of winding shall be as under:

> The tape shall be wound on a hard tubular core with sufficient tension to form a compact roll but without deforming the construction of the tape. The internal diameter of core construction of the tape shall not be less than 10 mm and not more than 13 mm and its width shall be approximately the same as the width of the tape but shall not exceed it. The roll shall not get loosened when dropped on floor from a height of one metre. Alternatively individual core having a diameter of 55 mm is also permitted.

The tapes shall be wound in an anti-clockwise spiral when the roll is viewed from the locking thread, as shown in Fig. 1.

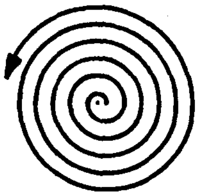

FIG. 1 VIEW OF ROLL FROM LOCKING THREAD SIDE

7 MARKING

7.1 Outer end of tapes of each roll shall be tied with the label bearing the following information:

a) Type of tape;

b) Length of roll in m;

c) Nominal thickness and width of tape in mm;

d) Manufacturer's name, initials or trade-mark, if any; and

e) Year of manufacture.

7.1.1 Each roll may also be marked with the Standard Mark.

7.1.1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standard Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

7.2 Package containing number of rolls as agreed to between the buyer and the seller shall be marked with the following;

a) Number of rolls in the package;

Table 2 Physical Requirements for Tapes

(*Clause* 5.4)

Sl No.	Characteristics	Nominal Thickness mm	Type of Weave	Requirements of Type 1 and Type 2	Method of Test, Ref to Cl of IS
(1)	(2)	(3)	(4)	(5)	(6)
i)	Ends/cm, *Min*	≤ 0.18	Plain	≥ 26	3.1 of 5352 (Part 2)
		≥ 0.18	Plain	≥ 24	
		≤ 0.28	Twill	≥ 26	
		≥ 0.28	Twill	≥ 32	
ii)	Picks/cm, *Min*	≤ 0.18	Plain	≥ 12	3.2 of 5352 (Part 2)
		≥ 0.18	Plain	≥ 10	
		≤ 0.28	Twill	≥ 12	
		≥ 0.28	Twill	≥ 10	
iii)	Tensile strength, *Min* (kg/mm)	0.18	Plain	0.800	3.6 of 5352 (Part 2)
		0.20	Plain	0.950	
		0.25	Plain	1.000	
		0.30	Plain	1.200	
		0.25	Twill	1.000	
		0.28	Twill	1.120	
		0.40	Twill	1.550	
		0.50	Twill	1.750	

NOTE — For tapes woven on shuttleless looms, finer counts with locking threads may be used.

b) Type of tape;
c) Length of roll in m;
d) Nominal thickness and width of tapes in mm;
e) Manufacturer's name, initials or trade-mark, if any; and
f) Year of manufacture.

8 SAMPLING

8.1 Lot

The quantity of tape of one definite type delivered to one buyer against one despatch note shall constitute a lot.

8.2 The conformity of a lot to the requirements of this standard shall be determined on the basis of test carried out on rolls of tape selected from the lot.

8.3 Unless otherwise specified, the number of rolls of tape to be selected at random from a lot shall be as given in Table 4.

8.4 For evaluating width, length, ends per centimetre, picks per centimetre and thickness, the number of rolls selected in col 2 of Table 4 shall constitute the test sample.

8.5 For evaluating tensile strength, the number of rolls selected in col 4 of Table 4 shall constitute the test sample. The rolls shall be selected at random from those drawn for the purpose of **8.4**. The required test specimens shall be drawn from each of the rolls and subjected to corresponding tests.

8.6 Criteria for Conformity

The lot shall be considered as conforming to the requirements of the standard if the following conditions are satisfied:

a) The number of rolls found defective for any one or more of the characteristics mentioned in **8.4** does not exceed the corresponding number given in col 3 of Table 4.
b) None of the test samples fails to meet the specified requirement in respect of the characteristics mentioned in **8.5**.

Table 3 Chemical Requirements for Tapes

(*Clause* 5.4)

Sl No. (1)	Characteristic (2)	Requirements (3)	Method of Test, Ref to (4)
i)	Scouring loss, *Max*	5% for grey and 2% for scoured tape	IS 1383
ii)	Conductivity of aqueous extract, *Max*	50 micro-mhos/cm	Cl 7 of IS 4420
iii)	*p*H value	6.0 - 8.5	IS 1390
iv)	Chloride content, *Max*	10 ppm	IS 4202

Table 4 Sample Size and Criteria for Conformity

(*Clauses* 8.3, 8.4, 8.5 *and* 8.6)

Lot Size (Number of Rolls) (1)	Sample Size (2)	Permissible Number of Defective Rolls (3)	Sub-sample Size (4)
Up to 100	5	0	2
101 to 300	13	0	3
301 to 500	20	1	5
501 to 1 000	32	2	8
1 001 and above	50	3	8

ANNEX A

(Foreword)

COMMITTEE COMPOSITION

Narrow Fabrics, Webbings and Braids Sectional Committee, TXD 12

Organization	*Representative(s)*
Ministry of Defence (DGQA), New Delhi	Brig B. B. Murthy ***(Chairman)*** Shri D. K. Srivastava (*Alternate* I) Shri S. K. Chakraborty (*Alternate* II)
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Jawahar Lal Phool Chand Tape Manufacturer, New Delhi	Shri S. N. Gupta
M. Best Cotton Rope Manufacturing Co, Mumbai	Shri Hemal M. Thanawala
Milton Apparels, Mumbai	Representative
Ministry of Defence (R&D), Kanpur	Shri Anurag Srivastava Shri R. Indu Shekhar (*Alternate*)
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Narrow Elastic Manufacturers' Association of India, Mumbai	Shri Hiralal Arora Shri Surendra Shah (*Alternate*)
Newtex Instulations Pvt Ltd, Nashik	Shri Sanjeev Kaushik
Office of the Textile Commissioner, Mumbai	Shri S. P. Kala Shri S. Chakrabarty (*Alternate*)
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Southern Group Industries (Pvt) Ltd, New Delhi	Shri Bimal P. Maheshwari Shri K. B. Srinivasloo (*Alternate*)
Textiles Committee, Mumbai	Shri N. Jeeva Shri A. K. Sen (*Alternate*)
The Mumbai Textile Research Association, Mumbai	Shri U. K. Gangopadhyay Shri R. N. Bharati (*Alternate*)
The Silk & Art Silk Mills' Research Association, Mumbai	Shri V. J. Garg Shri B. V. Doctor (*Alternate*)
The South India Textile Research Association, Coimbatore	Dr S. S. Ramasamy
Todi Industries Ltd, Mumbai	Shri S. B. Todi Shri N. B. Todi (*Alternate*)
Vanaja Ribbons and Allied Industries, Bangalore	Representative
Zebra Weblift Pvt Ltd, Mumbai	Shri Abdulkader A. Lokhandwala Shri Kaiser A. Lokhandwala (*Alternate*)
Zip Industries Pvt Ltd, Chennai	Shri J. K. Jhavor Shri M. L. Baharani (*Alternate* I) Shri G. Vishnu Vardhan (*Alternate* II)
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Shri Anil Kumar
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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402

Telegrams: Manaksanstha
(Common to all offices)

Regional Offices:		Telephone
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	2323 7617 2323 3841
Eastern	: 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	2337 8499, 2337 8561 2337 8626, 2337 9120
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